

CLAIMS:

1. A fruiting plant which has been genetically modified such that it does not functionally express:

- 5 (i) a peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof; and/or
- (ii) a peptide having the *MdAP3* amino acid sequence of SEQ ID NO: 4 or a functionally equivalent variant thereof,

which plant produces seedless or sterile fruit.

- 10 2. A fruiting plant which contains a polynucleotide encoding a peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof and in which the functional expression of said peptide within said plant has been disrupted such that the plant produces seedless or sterile fruit.

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3. A fruiting plant according to claim 1 or claim 2 which produces a pome fruit.
 - 15 4. A fruiting plant which contains:

- (a) a polynucleotide encoding a peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof; and
- 20 (b) a polynucleotide encoding a peptide having the *MdAP3* amino acid sequence of SEQ ID NO: 4 or a functionally equivalent variant thereof,

and in which the functional expression of said peptide encoded by polynucleotide (a) within said plant has been disrupted such that the plant produces seedless or sterile fruit.

- 25 5. A plant as claimed in claim 4 wherein functional expression of said peptide encoded by polynucleotide (a) is disrupted directly.
6. A plant as claimed in claim 4 wherein functional expression of said peptide encoded by polynucleotide (a) is disrupted indirectly.

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7. A plant as claimed in claim 6 wherein said indirect disruption is effected through disrupting functional expression of the peptide encoded by said polynucleotide (b).
8. A plant as claimed in any one of claims 4 to 7 wherein said plant is one which produces pome fruit.
9. A plant as claimed in claim 8 wherein said polynucleotide (a) has the coding sequence of SEQ ID NO: 1.
10. A plant as claimed in claim 8 wherein said polynucleotide (a) has the nucleotide sequence of SEQ ID NO: 1.
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11. A plant as claimed in claim 8, claim 9 or claim 10 in which said polynucleotide (b) has the coding sequence of SEQ ID NO: 3.
12. A plant as claimed in claim 8, claim 9 or claim 10 wherein said polynucleotide (b) has the nucleotide sequence of SEQ ID NO: 3.
13. A polynucleotide which encodes a peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof.
14. A polynucleotide as claimed in claim 13 which comprises the coding sequence of SEQ ID NO: 1.
15. A polynucleotide as claimed in claim 13 which comprises the nucleotide sequence of SEQ ID NO: 1.
- 20 16. A polynucleotide which encodes a peptide having the *MdAP3* amino acid sequence of SEQ ID NO: 4 or a functionally equivalent variant thereof.
17. A polynucleotide as claimed in claim 16 which comprises the coding sequence of SEQ ID NO: 3.
- 25 18. A polynucleotide as claimed in claim 16 which comprises the nucleotide sequence of SEQ ID NO: 3.
19. A DNA construct which includes a polynucleotide as claimed in any one of claims 13 to 18.
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20. A DNA construct comprising, in the 5'-3' direction:
- (a) a promoter sequence;
 - (b) an open reading frame polynucleotide as defined in any one of claims 13 to 18; and
 - (c) a termination sequence.
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21. A DNA construct as claimed in claim 20 wherein the open reading frame polynucleotide is in a sense orientation.
22. A DNA construct as claimed in claim 20 in which the open reading frame polynucleotide is in an anti-sense orientation.
- 10 23. A DNA construct comprising, in the 5'-3' direction:
- (a) a promoter sequence;
 - (b) a non-coding region of a gene coding for the peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof; and
 - (c) a termination sequence.
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24. A DNA construct comprising, in the 5'-3' direction:
- (a) a promoter sequence;
 - (b) a non-coding region of a gene coding for the peptide having the *MdAP3* amino acid sequence of SEQ ID NO: 4 or a functionally equivalent variant thereof; and
 - (c) a termination sequence.
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25. A DNA construct as claimed in claim 23 or claim 24 in which the non-coding region is in a sense orientation.
26. A DNA construct as claimed in claim 23 or claim 24 in which the non-coding region is in an anti-sense orientation.
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27. A DNA construct comprising, in the 5'-3' direction:

- (a) a promoter sequence;
- (b) a polynucleotide comprising a nucleotide sequence complementary to at least part of a sequence coding for the peptide having the *MdPI* amino acid sequence of SEQ ID NO: 2 or a functionally equivalent variant thereof; and
- (c) a termination sequence.

28. A DNA construct comprising, in the 5'-3' direction:

- (a) a promoter sequence;
- (b) a polynucleotide comprising a nucleotide sequence complementary to at least part of a sequence coding for the peptide having the *MdAP3* amino acid sequence of SEQ ID NO: 4 or a functionally equivalent variant thereof; and
- (c) a termination sequence.

29. A transgenic cell of a fruiting plant which includes a DNA construct as claimed in any one of claims 19 to 28.

30. A transgenic cell as claimed in claim 29 in which said fruiting plant is one which produces a pome fruit.

31. A fruiting plant containing a transgenic cell as claimed in claim 29.

32. A fruiting plant containing a transgenic cell as claimed in claim 30.

33. A seedless or sterile fruit which is produced by a fruiting plant as claimed in any one of claims 1, 2, 4-7 and 31.

34. A seedless or sterile pome fruit which is produced by a fruiting plant as claimed in any one of claims 3, 8 to 12 and 32.